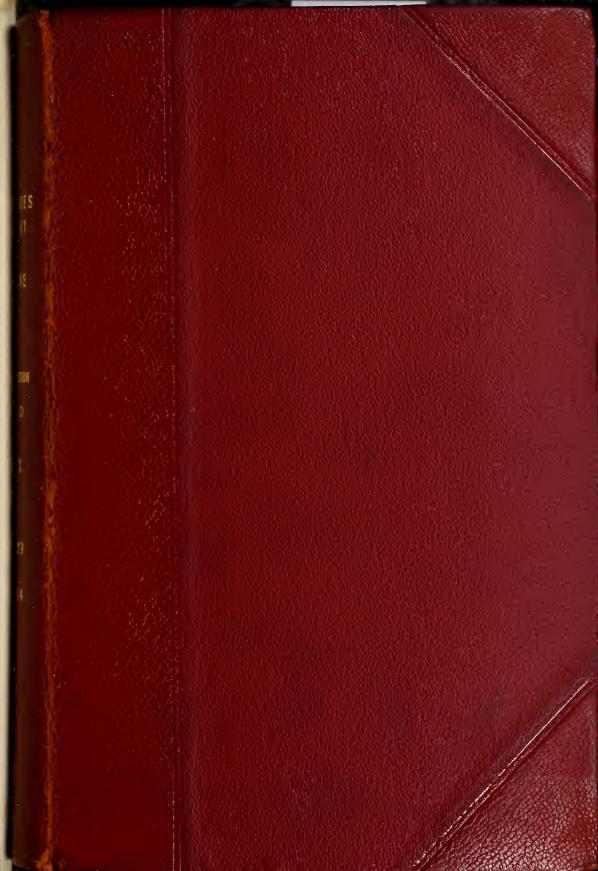
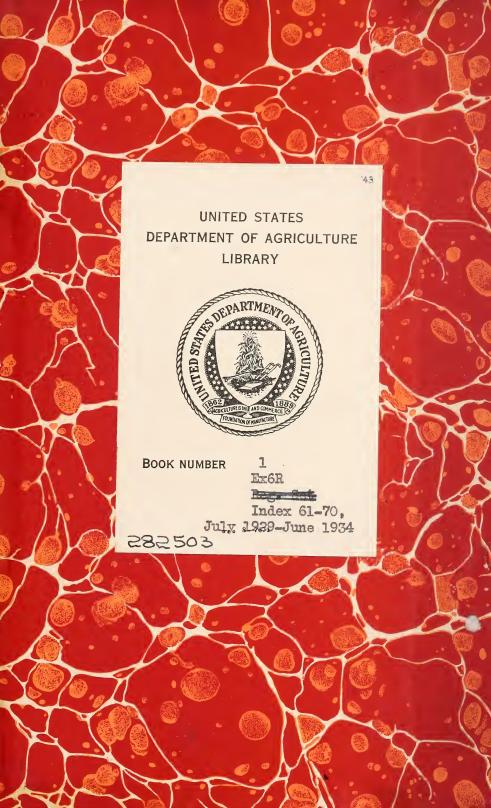
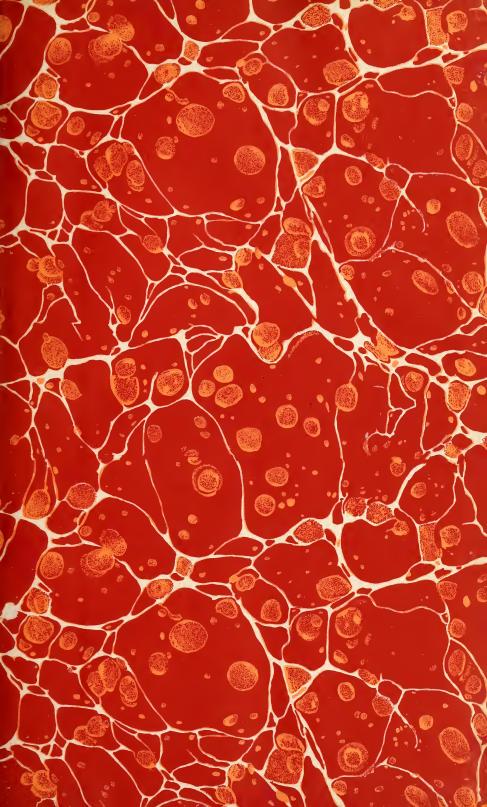
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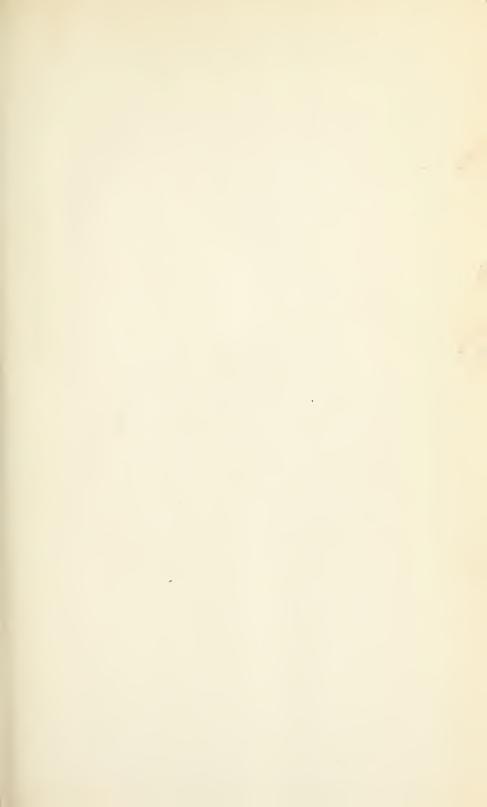














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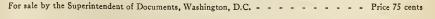
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Horticultural Congress, notes, (62) 500. Institute of Agriculture, administration and control, (65) 79.

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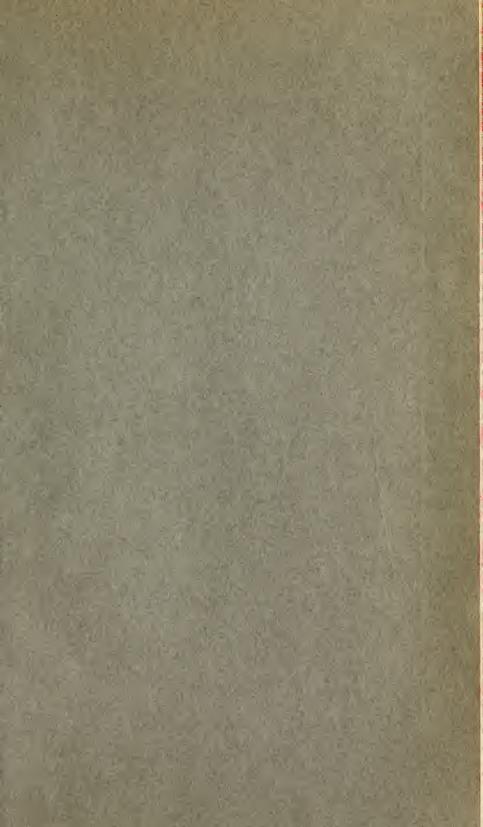
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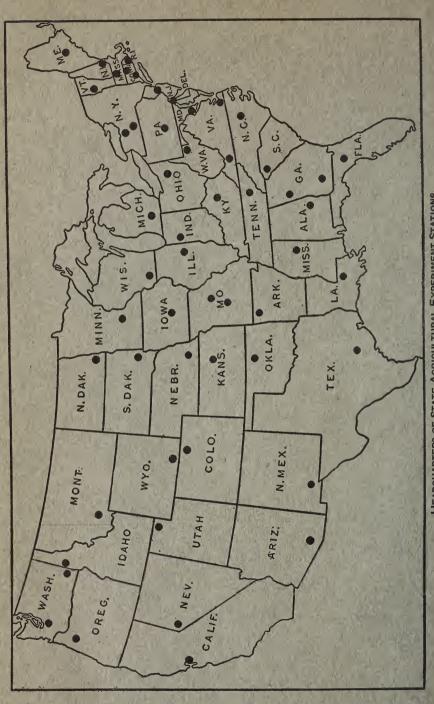
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